

ABSTRACT

A hard film formed of a material containing a $(M_{1-x}Si_x)(C_{1-d}N_d)$ compound, wherein M is at least one of Al and the elements in groups 3A, 4A, 5A and 6A, $0.45 \leq x \leq 0.98$ and $0 \leq d \leq 1$, where x, 1-x, d and 1-d are atomic ratios of Si, M, N and C, respectively.